

PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

*In re* Application of: ) Confirmation No. 9944  
CHOO *et al.* )  
Serial No.: 10/580,050 ) Group Art Unit: 1648  
I.A. Filed: November 19, 2004 )  
                                  ) Examiner: TBA  
                                  ) Atty. Docket No. 51835-US-PCT

For: **METHODS AND REAGENTS FOR TREATING, PREVENTING,  
AND DIAGNOSING BUNYAVIRUS INFECTION**

**PETITION UNDER 37 C.F.R. § 1.181 TO WITHDRAW**  
**HOLDING OF ABANDONMENT**

U.S. Patent and Trademark Office  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Dear Sir:

Applicants petition the Director under 37 C.F.R. § 1.181 to withdraw the holding of abandonment of the application referenced above as set forth in the Notification of Abandonment mailed May 14, 2009. Applicants believe no fee is due in connection with this petition. If a fee is due, please charge our Deposit Account No. 19-0733.

## **Statement of Facts**

1. The present application (Serial No. 10/580,050) is a national phase application of PCT/US2004/039333 filed November 19, 2004. Serial No. 10/580,050 was filed by express mail on May 19, 2006.

2. A Notification of Missing Requirements requesting an executed declaration was mailed on January 16, 2007. The executed declaration was filed by express mail on August 10, 2007 together with payment for a five-month extension of time.

3. On January 31, 2008 Applicants filed by express mail a preliminary amendment and paper and computer readable forms of a sequence listing. The preliminary amendment inserted sequence identifiers into the specification and directed entry of the paper copy of the sequence listing into the specification. Exhibit 1 is a copy of Applicants' sequence listing transmittal letter downloaded from PAIR. The transmittal letter bears a U.S. Patent and Trademark Office receipt stamp of January 31, 2008.

4. Exhibit 2 is a copy of a SCORE placeholder sheet for IFW content downloaded from PAIR. The placeholder sheet is dated January 31, 2008 and indicates receipt of the computer readable form of the sequence listing.

5. Exhibit 3 is a printout of PAIR's "Supplemental Content" view for this application.

6. Exhibit 4 is a copy of the contents of the sequence listing downloaded from the Supplemental Content. tab in PAIR

7. A Notice to Comply with sequence listing requirements was mailed on February 18, 2009. The notice asserted that a computer readable form of the sequence listing had not been submitted. The Notice provided a two-month initial deadline to respond (*i.e.*, until April 18,

2009). The Notice also indicated that extensions of time were available under 37 C.F.R. § 1.136 up to six months from the mailing date of the notice (*i.e.*, until August 18, 2009).

8. On March 20, 2009 Applicants filed by express mail a response to the Notice to Comply. The response noted that the computer readable form of the sequence listing had been filed on January 31, 2008. The response also stated that copies of the sequence listing and preliminary amendment filed on January 31, 2008 were being resubmitted; however, PAIR does not indicate that the sequence listing and preliminary amendment were re-submitted with the response.

9. A Notification of Abandonment was mailed on May 14, 2009, less than one month after the initial deadline for responding to the Notice to Comply. The Notification states that the application is abandoned because “[t]he sequence requirements still haven’t been met.”

#### **Point to be Reviewed**

The point to be reviewed is whether the holding of abandonment should be withdrawn because the computer readable form of the sequence listing was filed on January 31, 2008.

#### **Action Requested**

Applicant requests that the holding of abandonment of this application be withdrawn.

### **Argument**

The Notification of Abandonment appears to have been issued in error. As an initial matter, the Notification of Abandonment was mailed before the end of the statutory period for responding to the Notice to Comply.

Moreover, the Notice to Comply itself was erroneously issued. First, the U.S. Patent and Trademark Office's own records indicate that the computer readable form of the sequence listing was filed on January 31, 2008 (Exhibit 2). Second, the computer readable form of the sequence listing actually is present under the "Supplemental Content" tab for this application in PAIR (Exhibits 3 and 4). Third, the contents of the computer readable form downloaded from PAIR appears to contain all 191 sequences present in the paper form of the sequence listing filed on January 31, 2008 (Exhibit 4).

Applicants respectfully request that the holding of abandonment of this application be withdrawn.

Respectfully submitted,

**BANNER & WITCOFF, LTD.**

/Lisa M. Hemmendinger/

Date: May 27, 2009

By:

Lisa M. Hemmendinger  
Registration No. 42,653

Customer No. 22907

*Exhibit 1*Express Mail Label No.: ED 954551195 US Date: January 31, 2008

## IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

In Re Application of: Qui-Lim Choo

U.S. Appln. No.: 10/580,050

Intl. Appln. No.: PCT/US04/39333

I.A. Filing Date: 11/19/2004

Priority Date: 11/19/2003

Title: METHODS AND REAGENTS FOR  
TREATING, PREVENTING AND  
DIAGNOSING *BUNYAVIRUS*  
INFECTION

Confirmation No.: 7391

Group Art Unit: To Be Assigned

Examiner: To Be Assigned

TRANSMITTAL LETTER

Mail Stop PCT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Enclosed herewith are the following documents to complete the above-identified application:

1. TRANSMITTAL OF SEQUENCE LISTING INCLUDING:
  - a. Statements Under 37 C.F.R. 1.821(f-g), including statement specifically directing entry of the sequence listing into the application.
  - b. Paper Copy of the Sequence Listing (60 pages).
  - c. Compact Disk Containing CRF Copy of Sequence Listing (1 CD).
2. PRELIMINARY AMENDMENT.
3. RETURN RECEIPT POSTCARD.

The Commissioner is hereby authorized to charge any deficiency in fees or credit any overpayment associated with this communication and which may be required under 37 C.F.R. §§ 1.16 and 1.17 to Deposit Account No. 03-1664.

Respectfully submitted,

NOVARTIS VACCINES AND DIAGNOSTICS, INC.

Dated: January 31, 2005

By: Helen Lee

Helen Lee  
Registration No. 39,270

Customer No. 27476

NOVARTIS VACCINES AND DIAGNOSTICS, INC.

Corporate Intellectual Property – R338

P.O. Box 8097

Emeryville, CA 94662-8097

Telephone: (510) 923-2192

Faxsimile: (510) 655-3542

**SCORE Placeholder Sheet for IFW Content**

Application Number: 10580050

Document Date: 01/31/2008

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Sequence Listing

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (<http://es/ScoreAccessWeb>).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

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10/580,050

**Methods and reagents for treating, preventing and diagnosing bunyavirus infection**

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**Supplemental Content - Sequences**

Use this page to view or retrieve a specific version of the Sequence Listing submitted for this application.

[Previous](#)

Sub-Version	Number of Sequences	Sequence Name	Item Size	Item ID	Download
Version 1	0	US10580050	91,293	09323b6780b376d2	

**If you need help:**

- Call the Patent Electronic Business Center at (866) 217-9197 (toll free) or e-mail [EBC@uspto.gov](mailto:EBC@uspto.gov) for specific questions about Patent Application Information Retrieval (PAIR).
- Send general questions about USPTO programs to the [USPTO Contact Center \(UCC\)](#).
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## SEQUENCE LISTING

<110> CHOO, Qui-Lim  
HOUGHTON, Michael  
SCOTT, Elizabeth  
WEINER, Amy

<120> METHODS AND REAGENTS FOR TREATING, PREVENTING AND DIAGNOSING  
BUNYAVIRUS INFECTION

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Glu Val Asp Pro Leu Thr Ile Asp Ala Pro His Ile Thr Pro Asp Asn  
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Tyr Leu Tyr Ile Asn Asn Val Leu Tyr Ile Ile Asp Tyr Lys Val Ser  
85 90 95

Val Ser Asn Glu Ser Ser Val Ile Thr Tyr Asp Lys Tyr Tyr Glu Leu  
100 105 110

Thr Arg Asp Ile Ser Asp Arg Leu Ser Ile Pro Ile Glu Ile Val Ile  
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Val Arg Ile Asp Pro Val Ser Lys Asp Leu His Ile Asn Ser Asp Arg  
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Val Lys Ile Arg Glu Tyr Thr Lys Lys Asp Tyr Ser Glu His Ile Ser  
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Gln Asp Gln Arg Glu Ile Ser Lys Ser Leu His Asp Gln Lys Pro Ser  
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Ser Lys Ala Arg Ser Ser Trp Lys Gln Ile Met Asn Lys Lys Leu Glu  
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Pro Lys Gln Ile Asn Asn Ala Leu Val Leu Trp Glu Gln Gln Phe Met  
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Val Asn Asn Asp Leu Ile Asp Lys Ser Glu Lys Leu Lys Leu Phe Lys  
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Glu Asp Leu Glu Val Ser Lys Pro Lys Ile Leu Asp Phe Asp Asp Ala  
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Asn Met Tyr Leu Ala Ser Leu Thr Met Met Glu Gln Ser Lys Lys Ile  
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His Lys Ile Phe Glu Thr Arg Tyr Trp Gln Cys Ile Ser Asp Phe Ser  
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Glu Val Gln Ser Arg Lys Met Arg Leu Ala Asn Pro Met Phe Val Thr  
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Asp Glu Gln Val Cys Leu Glu Val Gly His Cys Asn Tyr Glu Met Leu  
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Val Lys Ser Thr Glu His Lys Ile Lys Val Phe Ile Leu Pro Thr  
1700 1705 1710

Lys Ser Tyr Thr Thr Thr Asp Phe Cys Ser Leu Met Gln Gly Asn  
1715 1720 1725

Leu Ile Lys Asp Lys Glu Trp Tyr Thr Val His Tyr Leu Lys Gln  
1730 1735 1740

Ile Leu Ser Gly Gly His Lys Ala Ile Met Gln His Asn Ala Thr  
1745 1750 1755

Ser Glu Gln Asn Ile Ala Phe Glu Cys Phe Lys Leu Ile Thr His  
1760 1765 1770

Phe Ala Asp Ser Phe Ile Asp Ser Leu Ser Arg Ser Ala Phe Leu  
1775 1780 1785

Gln Leu Ile Ile Asp Glu Phe Ser Tyr Lys Asp Val Lys Val Ser  
1790 1795 1800

Lys Leu Tyr Asp Ile Ile Lys Asn Gly Tyr Asn Arg Thr Asp Phe  
1805 1810 1815

Ile Pro Leu Leu Phe Arg Thr Gly Asp Leu Arg Gln Ala Asp Leu  
1820 1825 1830

Asp Lys Tyr Asp Ala Met Lys Ser His Glu Arg Val Thr Trp Asn  
1835 1840 1845

Asp Trp Gln Thr Ser Arg His Leu Asp Met Gly Ser Ile Asn Leu  
1850 1855 1860

Thr Ile Thr Gly Tyr Asn Arg Ser Ile Thr Ile Ile Gly Glu Asp  
1865 1870 1875

Asn Lys Leu Thr Tyr Ala Glu Leu Cys Leu Thr Arg Lys Thr Pro  
1880 1885 1890

Glu Asn Ile Thr Ile Ser Gly Arg Lys Leu Leu Gly Ala Arg His  
1895 1900 1905

Gly Leu Lys Phe Glu Asn Met Ser Lys Ile Gln Thr Tyr Pro Gly  
1910 1915 1920

Asn Tyr Tyr Ile Thr Tyr Arg Lys Lys Asp Arg His Gln Phe Val  
1925 1930 1935

Tyr Gln Ile His Ser His Glu Ser Ile Thr Arg Arg Asn Glu Glu  
1940 1945 1950

His Met Ala Ile Arg Thr Arg Ile Tyr Asn Glu Ile Thr Pro Val  
1955 1960 1965

Cys Val Val Asn Val Ala Glu Val Asp Gly Asp Gln Arg Ile Leu  
1970 1975 1980

Ile Arg Ser Leu Asp Tyr Leu Asn Asn Asp Ile Phe Ser Leu Ser  
1985 1990 1995

Arg Ile Lys Val Gly Leu Asp Glu Phe Ala Thr Ile Lys Lys Ala  
2000 2005 2010

His Phe Ser Lys Met Val Ser Phe Glu Gly Pro Pro Ile Lys Thr  
2015 2020 2025

Gly Leu Leu Asp Leu Thr Glu Leu Met Lys Ser Gln Asp Leu Leu  
2030 2035 2040

Asn Leu Asn Tyr Asp Asn Ile Arg Asn Ser Asn Leu Ile Ser Phe  
2045 2050 2055

Ser Lys Leu Ile Cys Cys Glu Gly Ser Asp Asn Ile Asn Asp Gly  
2060 2065 2070

Leu Glu Phe Leu Ser Asp Asp Pro Met Asn Phe Thr Glu Gly Glu  
2075 2080 2085

Ala Ile His Ser Thr Pro Ile Phe Asn Ile Tyr Tyr Ser Lys Arg  
2090 2095 2100

Gly Glu Arg His Met Thr Tyr Arg Asn Ala Ile Lys Leu Leu Ile  
2105 2110 2115

Glu Arg Glu Thr Lys Ile Phe Glu Glu Ala Phe Thr Phe Ser Glu  
2120 2125 2130

Asn Gly Phe Ile Ser Pro Glu Asn Leu Gly Cys Leu Glu Ala Val  
2135 2140 2145

Val Ser Leu Ile Lys Leu Leu Lys Thr Asn Glu Trp Ser Thr Val  
2150 2155 2160

Ile Asp Lys Cys Ile His Ile Cys Leu Ile Lys Asn Gly Met Asp  
2165 2170 2175

His Met Tyr His Ser Phe Asp Val Pro Lys Cys Phe Met Gly Asn  
2180 2185 2190

Pro Ile Thr Arg Asp Met Asn Trp Met Met Phe Arg Glu Phe Ile  
2195 2200 2205

Asn Ser Leu Pro Gly Thr Asp Ile Pro Pro Trp Asn Val Met Thr  
2210 2215 2220

Glu Asn Phe Lys Lys Lys Cys Ile Ala Leu Ile Asn Ser Lys Leu  
2225 2230 2235

Glu Thr Gln Arg Asp Phe Ser Glu Phe Thr Lys Leu Met Lys Lys  
2240 2245 2250

Glu Gly Gly Arg Ser Asn Ile Glu Phe Asp  
2255 2260

<210> 7  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Antisense primer derived from M segment of LACV genome

<400> 7  
cgatcaacaa tccaatgata acaag 25

<210> 8  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Sense primer derived from M segment of LACV genome

<400> 8  
tggaaatggc atcgagaata aa 22

<210> 9  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of LACV genome

<400> 9  
attatctcac ctgttatcttg aattatgctg taagctggg 39

<210> 10  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Sense primer derived from S segment of LACV genome

<400> 10  
gtctcagcac gagttgatca gaa 23

<210> 11  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Antisense primer derived from S segment of LACV genome

<400> 11  
aatggtcagc gggtagaatt tg 22

<210> 12  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from S segment of LACV genome

<400> 12  
tggtgttagga tgggacagtg ggc 25

<210> 13  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Sense primer derived from L segment of LACV genome

<400> 13  
aaagtccgggc ttgacgaatt t 21

<210> 14  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Antisense primer derived from L segment of LACV genome

<400> 14		
cgAACAGAAA CTCTAAACCCA TCA		23
<210> 15		
<211> 25		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Probe derived from L segment of LACV genome		
<400> 15		
CCCCCAATTAA AGACAGGGCT CCTCG		25
<210> 16		
<211> 25		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Synthetic oligonucleotide specific for LACV sequence		
<400> 16		
CATGAGGCAT TCAAATTAGG TTCTA		25
<210> 17		
<211> 174		
<212> PRT		
<213> La Crosse virus		
<400> 17		
Val Met Cys Lys Ser Lys Gly Pro Ala Ser Ile Leu Ser Ile Ile Thr		
1                         5                         10                         15		
Ala Val Leu Val Leu Thr Phe Val Thr Pro Ile Asn Ser Met Val Leu		
20                         25                         30		
Gly Glu Ser Lys Glu Thr Phe Glu Leu Glu Asp Leu Pro Asp Asp Met		
35                         40                         45		
Leu Glu Met Ala Ser Arg Ile Asn Ser Tyr Tyr Leu Thr Cys Ile Leu		
50                         55                         60		
Asn Tyr Ala Val Ser Trp Gly Leu Val Ile Ile Gly Leu Leu Ile Gly		
65                         70                         75                         80		
Leu Leu Phe Lys Lys Tyr Gln His Arg Phe Leu Asn Val Tyr Ala Met		
85                         90                         95		
Tyr Cys Glu Glu Cys Asp Met Tyr His Asp Lys Ser Gly Leu Lys Arg		
100                         105                         110		
His Gly Asp Phe Thr Asn Lys Cys Arg Gln Cys Thr Cys Gly Gln Tyr		
115                         120                         125		

Glu Asp Ala Ala Gly Leu Met Ala His Arg Lys Thr Tyr Asn Cys Leu  
130 135 140

Val Gln Tyr Lys Ala Lys Trp Met Met Asn Phe Leu Ile Ile Tyr Ile  
145 150 155 160

Phe Leu Ile Leu Ile Lys Asp Ser Ala Ile Val Val Gln Ala  
165 170

<210> 18  
<211> 968  
<212> PRT  
<213> La Crosse virus

<400> 18  
Ala Gly Thr Asp Phe Thr Thr Cys Leu Glu Thr Glu Ser Ile Asn Trp  
1 5 10 15

Asn Cys Thr Gly Pro Phe Leu Asn Leu Gly Asn Cys Gln Lys Gln Gln  
20 25 30

Lys Lys Glu Pro Tyr Thr Asn Ile Ala Thr Gln Leu Lys Gly Leu Lys  
35 40 45

Ala Ile Ser Val Leu Asp Val Pro Ile Ile Thr Gly Ile Pro Asp Asp  
50 55 60

Ile Ala Gly Ala Leu Arg Tyr Ile Glu Glu Lys Glu Asp Phe His Val  
65 70 75 80

Gln Leu Thr Ile Glu Tyr Ala Met Leu Ser Lys Tyr Cys Asp Tyr Tyr  
85 90 95

Thr Gln Phe Ser Asp Asn Ser Gly Tyr Ser Gln Thr Thr Trp Arg Val  
100 105 110

Tyr Leu Arg Ser His Asp Phe Glu Ala Cys Ile Leu Tyr Pro Asn Gln  
115 120 125

His Phe Cys Arg Cys Val Lys Asn Gly Glu Lys Cys Ser Ser Ser Asn  
130 135 140

Trp Asp Phe Ala Asn Glu Met Lys Asp Tyr Tyr Ser Gly Lys Gln Thr  
145 150 155 160

Lys Phe Asp Lys Asp Leu Asn Leu Ala Leu Thr Ala Leu His His Ala  
165 170 175

Phe Arg Gly Thr Ser Ser Ala Tyr Ile Ala Thr Met Leu Ser Lys Lys  
180 185 190

Ser Asn Asp Asp Leu Ile Ala Tyr Thr Asn Lys Ile Lys Thr Lys Phe  
195 200 205

Pro Gly Asn Ala Leu Leu Lys Ala Ile Ile Asp Tyr Ile Ala Tyr Met

210

215

220

Lys Ser Leu Pro Gly Met Ala Asn Phe Lys Tyr Asp Glu Phe Trp Asp  
 225 230 235 240

Glu Leu Leu Tyr Lys Pro Asn Pro Ala Lys Ala Ser Asn Leu Ala Arg  
 245 250 255

Gly Lys Glu Ser Ser Tyr Asn Phe Lys Leu Ala Ile Ser Ser Lys Ser  
 260 265 270

Ile Lys Thr Cys Lys Asn Val Lys Asp Val Ala Cys Leu Ser Pro Arg  
 275 280 285

Ser Gly Ala Ile Tyr Ala Ser Ile Ile Ala Cys Gly Glu Pro Asn Gly  
 290 295 300

Pro Ser Val Tyr Arg Lys Pro Ser Gly Gly Val Phe Gln Ser Ser Thr  
 305 310 315 320

Asp Arg Ser Ile Tyr Cys Leu Leu Asp Ser His Cys Leu Glu Glu Phe  
 325 330 335

Glu Ala Ile Gly Gln Glu Glu Leu Asp Ala Val Lys Lys Ser Lys Cys  
 340 345 350

Trp Glu Ile Glu Tyr Pro Asp Val Lys Leu Ile Gln Glu Gly Asp Gly  
 355 360 365

Thr Lys Ser Cys Arg Met Lys Asp Ser Gly Asn Cys Asn Val Ala Thr  
 370 375 380

Asn Arg Trp Pro Val Ile Gln Cys Glu Asn Asp Lys Phe Tyr Tyr Ser  
 385 390 395 400

Glu Leu Gln Lys Asp Tyr Asp Lys Ala Gln Asp Ile Gly His Tyr Cys  
 405 410 415

Leu Ser Pro Gly Cys Thr Thr Val Arg Tyr Pro Ile Asn Pro Lys His  
 420 425 430

Ile Ser Asn Cys Asn Trp Gln Val Ser Arg Ser Ser Ile Ala Lys Ile  
 435 440 445

Asp Val His Asn Ile Glu Asp Ile Glu Gln Tyr Lys Lys Ala Ile Thr  
 450 455 460

Gln Lys Leu Gln Thr Ser Leu Ser Leu Phe Lys Tyr Ala Lys Thr Lys  
 465 470 475 480

Asn Leu Pro His Ile Lys Pro Ile Tyr Lys Tyr Ile Thr Ile Glu Gly  
 485 490 495

Thr Glu Thr Ala Glu Gly Ile Glu Ser Ala Tyr Ile Glu Ser Glu Val  
 500 505 510

Pro Ala Leu Ala Gly Thr Ser Ile Gly Phe Lys Ile Asn Ser Lys Glu

	515		520		525
Gly Lys His Leu Leu Asp Val Ile Ala Tyr Val Lys Ser Ala Ser Tyr					
530	535		540		
Ser Ser Val Tyr Thr Lys Leu Tyr Ser Thr Gly Pro Thr Ser Gly Ile					
545	550		555		560
Asn Thr Lys His Asp Glu Leu Cys Thr Gly Pro Cys Pro Ala Asn Ile					
565	570		575		
Asn His Gln Val Gly Trp Leu Thr Phe Ala Arg Glu Arg Thr Ser Ser					
580	585		590		
Trp Gly Cys Glu Glu Phe Gly Cys Leu Ala Val Ser Asp Gly Cys Val					
595	600		605		
Phe Gly Ser Cys Gln Asp Ile Ile Lys Glu Glu Leu Ser Val Tyr Arg					
610	615		620		
Lys Glu Thr Glu Glu Val Thr Asp Val Glu Leu Cys Leu Thr Phe Ser					
625	630		635		640
Asp Lys Thr Tyr Cys Thr Asn Leu Asn Pro Val Thr Pro Ile Ile Thr					
645	650		655		
Asp Leu Phe Glu Val Gln Phe Lys Thr Val Glu Thr Tyr Ser Leu Pro					
660	665		670		
Arg Ile Val Ala Val Gln Asn His Glu Ile Lys Ile Gly Gln Ile Asn					
675	680		685		
Asp Leu Gly Val Tyr Ser Lys Gly Cys Gly Asn Val Gln Lys Val Asn					
690	695		700		
Gly Thr Ile Tyr Gly Asn Gly Val Pro Arg Phe Asp Tyr Leu Cys His					
705	710		715		720
Leu Ala Ser Arg Lys Glu Val Ile Val Arg Lys Cys Phe Asp Asn Asp					
725	730		735		
Tyr Gln Ala Cys Lys Phe Leu Gln Ser Pro Ala Ser Tyr Arg Leu Glu					
740	745		750		
Glu Asp Ser Gly Thr Val Thr Ile Ile Asp Tyr Lys Lys Ile Leu Gly					
755	760		765		
Thr Ile Lys Met Lys Ala Ile Leu Gly Asp Val Lys Tyr Lys Thr Phe					
770	775		780		
Ala Asp Ser Val Asp Ile Thr Ala Glu Gly Ser Cys Thr Gly Cys Ile					
785	790		795		800
Asn Cys Phe Glu Asn Ile His Cys Glu Leu Thr Leu His Thr Thr Ile					
805	810		815		
Glu Ala Ser Cys Pro Ile Lys Ser Ser Cys Thr Val Phe His Asp Arg					

	820	825	830
Ile Leu Val Thr Pro Asn Glu His Lys Tyr Ala Leu Lys Met Val Cys			
835	840	845	
Thr Glu Lys Pro Gly Asn Thr Leu Thr Ile Lys Val Cys Asn Thr Lys			
850	855	860	
Val Glu Ala Ser Met Ala Leu Val Asp Ala Lys Pro Ile Ile Glu Leu			
865	870	875	880
Ala Pro Val Asp Gln Thr Ala Tyr Ile Arg Glu Lys Asp Glu Arg Cys			
885	890		895
Lys Thr Trp Met Cys Arg Val Arg Asp Glu Gly Leu Gln Val Ile Leu			
900	905		910
Glu Pro Phe Lys Asn Leu Phe Gly Ser Tyr Ile Gly Ile Phe Tyr Thr			
915	920		925
Phe Ile Ile Ser Ile Val Val Leu Leu Val Ile Ile Tyr Val Leu Leu			
930	935		940
Pro Ile Cys Phe Lys Leu Arg Asp Thr Leu Arg Lys His Glu Asp Ala			
945	950	955	960
Tyr Lys Arg Glu Met Lys Ile Arg			
965			
 <210> 19			
<211> 92			
<212> PRT			
<213> La Crosse virus			
 <400> 19			
Met Met Ser His Gln Gln Val Gln Met Asp Leu Ile Leu Met Gln Gly			
1	5	10	15
Ile Trp Thr Ser Val Leu Lys Met Gln Asn Tyr Ser Thr Leu Leu Gln			
20	25	30	
Leu Gly Ser Ser Ser Ser Met Pro Gln Arg Pro Arg Leu Leu Ser Arg			
35	40	45	
Val Ser Gln Arg Gly Arg Leu Thr Leu Asn Leu Glu Ser Gly Arg Trp			
50	55	60	
Arg Leu Ser Ile Ile Ile Phe Leu Glu Thr Gly Thr Thr Gln Leu Val			
65	70	75	80
Thr Thr Ile Leu Pro Ser Thr Asp Tyr Leu Gly Ile			
85	90		
 <210> 20			
<211> 25			

<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Forward primer derived from M segment of the LACV genome  
  
<400> 20  
ttgtacaaggc tgctggaaact gactt

25

<210> 21  
<211> 22  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Forward primer derived from M segment of the LACV genome  
  
<400> 21  
tgtggtgcccc gctatgatac tt

22

<210> 22  
<211> 20  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Forward primer derived from M segment of the LACV genome  
  
<400> 22  
tgtggtgcccc gctatgatac

20

<210> 23  
<211> 21  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Forward primer derived from M segment of the LACV genome  
  
<400> 23  
ctgtggtgccc cgctatgata c

21

<210> 24  
<211> 20  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Forward primer derived from M segment of the LACV genome  
  
<400> 24  
ctgtggtgccc cgctatgata

20

<210> 25  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 25  
tctgtgggtgc ccgctatgat a 21

<210> 26  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 26  
tctgtgggtgc ccgctatgat 20

<210> 27  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 27  
gtgtctgtgg tgcccgctat 20

<210> 28  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 28  
agacagtggc actgtgacca taa 23

<210> 29  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 29  
agacagtggc actgtgacca taat

<210> 30  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 30  
aagacagtgg cactgtgacc ata

<210> 31  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 31  
aagacagtgg cactgtgacc ataa

<210> 32  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 32  
aagacagtgg cactgtgacc ataat

<210> 33  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 33  
gaagacagtg gcactgtgac cata

<210> 34  
<211> 25  
<212> DNA  
<213> Artificial Sequence

24

23

24

25

25

24

<220>  
<223> Forward primer derived from M segment of the LACV genome

<400> 34  
agaagacagt ggcactgtga ccata

25

<210> 35  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 35  
ctgggccatt tttgaacctc gggaa

25

<210> 36  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 36  
ctgggccatt tttgaacctc ggaa

24

<210> 37  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 37  
cactgggccca tttttgaacc tcgg

24

<210> 38  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 38  
ctgggccatt tttgaacctc ggg

23

<210> 39  
<211> 25

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 39  
tgaacctcggaatggccaa aagca 25

<210> 40  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 40  
tgcaactgggc cattttgaa cctcg 25

<210> 41  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 41  
actgggccat ttttgaacct cggga 25

<210> 42  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 42  
actgggccat ttttgaacct cggg 24

<210> 43  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 43  
tggggcattt ttgaacctcg gga 23

<210> 44  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 44  
tggccat~~t~~ ttgaac~~c~~ ggaat 25

<210> 45  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 45  
cactggcca ttttgaacc tcggg 25

<210> 46  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 46  
tggccat~~t~~ ttgaac~~c~~ ggaa 24

<210> 47  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 47  
tgtcaagtc gaaaggcc~~t~~ gca 23

<210> 48  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 48  
catgtgcaag tcgaaaaggc ctgc 24

<210> 49  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 49  
tcatgtgcaa gtcgaaaaggc cctg 24

<210> 50  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 50  
atgtgcaagt cgaaaaggcc tgca 24

<210> 51  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 51  
tcatgtgcaa gtcgaaaaggc cctgc 25

<210> 52  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 52  
taaccgcaga agggtcatgc accg 24

<210> 53  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome  
  
<400> 53  
ccgcagaagg gtcatgcacc g

21

<210> 54  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome  
  
<400> 54  
aaccgcagaa gggtcatgca ccg

23

<210> 55  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome  
  
<400> 55  
ataaccgcag aagggtcatg caccg

25

<210> 56  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome  
  
<400> 56  
accgcagaag ggtcatgcac cg

22

<210> 57  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome  
  
<400> 57  
cagaagggtc atgcacccggc tgt

23

<210> 58  
<211> 21

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Probe derived from M segment of the LACV genome

<400> 58  
cgcagaaggg tcatgcaccc g 21

<210> 59  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Reverse primer derived from M segment of the LACV genome

<400> 59  
agtcccttta actgagttgc aatgt 25

<210> 60  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Reverse primer derived from M segment of the LACV genome

<400> 60  
aaggtaaga ccagtaccgc agtaa 25

<210> 61  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Reverse primer derived from M segment of the LACV genome

<400> 61  
gtgtgcaacg ttaattcgca at 22

<210> 62  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Reverse primer derived from M segment of the LACV genome

<400> 62  
tgtggtgtgc aacgttaatt cg 22

<210> 63  
<211> 22  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Reverse primer derived from M segment of the LACV genome  
  
<400> 63  
tcaatttgtgg tgtgcaacgt ta

22

<210> 64  
<211> 23  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Reverse primer derived from M segment of the LACV genome  
  
<400> 64  
tcaatttgtgg tgtgcaacgt taa

23

<210> 65  
<211> 21  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Reverse primer derived from M segment of the LACV genome  
  
<400> 65  
tcaatttgtgg tgtgcaacgt t

21

<210> 66  
<211> 24  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Reverse primer derived from M segment of the LACV genome  
  
<400> 66  
tcaatttgtgg tgtgcaacgt taat

24

<210> 67  
<211> 23  
<212> DNA  
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<220>  
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<400> 68  
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<210> 69  
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tcagcacgag ttgatcagaa caa  
  
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gagtgtatg tcggatttgg tgtt  
  
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agtctcagca cgagttgatc agaa

24

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gtctcagcac gagttgatca gaac

24

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24

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22

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21

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23

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<400> 81  
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<400> 85  
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25

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21

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21

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<400> 91  
caagcaaggc atgatggacc ctcaa 25

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<400> 92  
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<210> 93  
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<400> 93  
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<400> 94  
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<400> 95  
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<210> 96  
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<400> 96  
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<400> 97  
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<210> 99  
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<210> 101  
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<400> 101  
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<210> 102  
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<400> 102  
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<210> 103  
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<400> 103  
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<210> 104  
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<210> 105  
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24

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25

<210> 112  
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22

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25

<210> 114  
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23

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<210> 116  
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<400> 116  
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<400> 117  
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<210> 118  
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<210> 119  
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<400> 119  
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<210> 120  
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<400> 122  
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<210> 124  
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<400> 124  
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<210> 125  
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<400> 126  
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<400> 127  
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<400> 128  
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<400> 129  
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<400> 130  
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<400> 131  
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<210> 132  
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<400> 132  
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<210> 134  
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<210> 135  
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<400> 135  
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<400> 136  
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<400> 138  
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<400> 139  
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<210> 141  
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<400> 141  
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<400> 142  
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<210> 143  
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<400> 143  
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<210> 144  
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<400> 144  
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<210> 145  
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<210> 146  
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<400> 146  
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<210> 147  
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<400> 147  
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<210> 148  
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<400> 148  
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<210> 149  
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<400> 149  
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<210> 150  
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<400> 150  
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<210> 151  
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<400> 151  
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<210> 152  
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<400> 152  
tccttcaggc tcttagaat tgc 23

<210> 153  
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<400> 153  
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<210> 154  
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<400> 154  
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<210> 155  
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<400> 155  
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<210> 156  
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<400> 156  
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<210> 157  
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<220>  
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<400> 157  
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<210> 158  
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<400> 158  
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<210> 159  
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<400> 159  
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<210> 160  
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<220>  
<223> Reverse primer derived from S segment of LACV genome

<400> 160  
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<210> 161  
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<220>  
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<400> 161  
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<210> 162  
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<220>  
<223> Reverse primer derived from S segment of LACV genome

<400> 162  
gccactctcc aaattttaggg ttag 24

<210> 163  
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<220>  
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<400> 163  
cacctgcccc tctccaaatt tag 23

<210> 164  
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<220>  
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<400> 164  
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<210> 165  
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<220>  
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<400> 165  
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<210> 166  
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<400> 166  
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<210> 167  
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<400> 167  
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<210> 168  
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<400> 168  
caatggtcag cgggtagaat ttg 23

<210> 169  
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<400> 169  
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<210> 170  
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<400> 170  
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<210> 171  
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<400> 171  
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<210> 172  
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<212> DNA  
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<220>  
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<400> 172  
acctggccact ctccaaattt agg 23

<210> 173  
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<220>  
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<400> 173  
taaagtgcggg cttgacgaat tt 22

<210> 174  
<211> 22  
<212> DNA  
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<400> 174  
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<210> 175  
<211> 23  
<212> DNA  
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<220>  
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<400> 175  
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<210> 176  
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